

the drainage of the city into effect, yet, from the complicated nature of the subject, involving excavations of great extent and expense, the commissioners, after beginning with vigour, have stopped short. The reason is said to be that numerous private drains are found to exist, unknown to the authorities, and which even the best survey that can be made will very imperfectly discover and point out. An attempt, however, is being made to produce such a survey.

**Glasgow.**—The *Constitutional*, a local paper, says that "A large proportion even of the newly-constructed houses in Glasgow are very unfit for human residence, and are a direct cause of the diseases which are constantly sweeping families to the grave."

**Selkirk.**—Arrangements are in contemplation to erect baths in this town.

### THE OPERATIVE ENGINEERS AND THEIR EMPLOYERS.

THE masters, we regret to say, have already carried out their threat to dismiss their workmen in the mass, retaining, of course, apprentices and foremen, the former, it is said, as one to four of the workmen. It seems to be expected, however, that the employers will gradually or shortly recall all who have not cast their lot with the workmen's association. It is surely a hard case for the non-unionists. We are quite aware that in many cases there remained no work for certain workmen to do, unless those unavoidably dismissed were at once replaced by others; but the dismissal, it appears, has been wholesale, no attempt being made to palliate its results by at least retaining some portion of the thousands employed. We earnestly trust that some understanding will be come to speedily on the whole question.

That this is a contest, however, such as has never, perhaps, occurred till now between employer and employed, and that it is a most formidable one, and likely to shake the long-standing relations between them, if not to form a critical link between these and some new and as yet untried "organization" of industry, whether successfully or not, we are led strongly to suspect. The body of operatives now at war with the heretofore dispensers of their livelihoods ranks very high in general ability and intelligence. They appear to be in extensive combination. Moreover, they are evidently strongly imbued with ideas of industrial association. Much, as we have already said, may be done by industrial association under proper management, but the operative engineers will find the whole of their 25,000, a paltry amount to begin with under present circumstances, although, under peaceable relations with their present capitalist employers, much might have been done with such a sum. Should they borrow they may not find their new capitalists much less "masters" or much more profitable ones than their old.

In respect to the demand of the men that piece-work should be abolished, it is an instructive circumstance that the Parisian associations of workmen, who began with equal wages and profits, were at length obliged to graduate these according to the labour and skill of the operatives. What our own workmen, therefore, demand of their employers, namely, equal wages to the slow and the quick, the skilful and the unskilful, is what workmen in association will not and cannot give to one another. As to over-time, we earnestly wish that it could be abolished, but is not the demand that it be so, as a general rule, suicidal? Over-work can only be abolished, consistently with prosperity to the trade itself, if even then, by the institution of a distinct class of supernumerary workmen, to be called in only on occasions of temporary hurry and necessity, and cast off or paid off on the instant that the occasion ceases. Would such a class of workmen submit to vicissitudes like these without competing with their fellows for permanent employment and pulling down wages in the attempt? There may be a superabundance of workmen even now, but if there be, this is certainly but a lame way of meeting the difficulty. Better far that any such superabun-

dance be drafted off, or even induced, by despair, to draft themselves off, into other businesses or other countries, than that such a system should become normal to the prejudice of all. When men are out of work entirely, and cease to hope for it in one business, they turn to some other; but a system of perpetual increase and decrease, taking on and paying off, by the week or by the day, according to the fluctuating amount of orders on hand, would assuredly tempt more than now are tempted to persist in hoping for permanent employment so long as they could have even a chance of temporary.

### NOTES ON A MURAL PAINTING OF THE THIRTEENTH CENTURY. POUND IN THE SAINTE-CHAPELLE, PARIS.

THE careful researches to which the execution of the works of restoration in the Sainte-Chapelle has given rise, led to the discovery of an Annunciation painted on the bare wall, in a false window, on the north side of the lower chapel. This painting of the thirteenth century is in the most perfect preservation: it was evidently conceived in imitation of a painted window, the style and arrangements of which are copied in it. Being covered with plaster, it was easily restored by careful cleaning.

The Minister of Public Works having instructed M. Dumas and M. Perroz to examine this painting, and to communicate to him the nature of the colours used in its execution, as well as that of the excipients which had served for fixing them; they have done so; and in *The Chemist* of this month\* the substance of their report is given:—

A fat and resinous stucco, analogous to that which MM. Thenard and D'Arcet have devised, to place hot and bare on the cupola of the Pantheon, had been similarly applied on the stone which bears the picture in the Sainte-Chapelle.

On this resinous stucco, the painter of the Sainte-Chapelle had fixed gold leaf, which formed the under part of almost the whole of the painting.

But these gold leaves are not applied immediately on the resinous stucco. As a medium, and perhaps with the view of heightening or sustaining the colour of the gold, an orange red cement was made use of, formed probably of emplastrum diapalmæ, malaxated in the soft state with minium.

When powdered, it gave out a rancid odour, exactly resembling that of emplastrum diapalmæ. On being heated, it turned black: treated by hydrochloric acid and alcohol, chloride of lead was obtained, and a mixture of fatty acids which presented the properties of a mixture of oleic and margaric acids.

100 parts of this cement contain:—  
Protoxide of lead . . . . 81  
Fatty acids . . . . . 19

100

It is probable that the whites were obtained with a preparation of lead analogous to, or even identical with, white lead.

The blues of the draperies were obtained with phosphate of iron, and probably with the native phosphate of iron.

This second blue was obtained by means of ultramarine.

The bright red, by means of which the halo surrounding the head of the angel is painted, consists of vermillion. Indeed, distilled with lime, it furnished metallic mercury. Under the painting, it was easy to recognise the presence of the leaves of gold, which were found almost every where, but which, in this particular case, seem to contribute to giving still more brilliancy to the vermillion tint.

All the browns and yellows were painted with ochres. The greens result from the admixture of these same ochres with the phosphate of iron.

The rose and violet colours had for an excipient, carbonate of lime mixed with a small quantity of phosphate of lime.

According to all appearance, the rose powder employed in the thirteenth century, was ob-

tained by pulverising the rose shells of the *tellina fragilis*, which are found on our shores in great abundance, and the violet colour from portions of the shells of the *seretina fluviatilis*.

Their preservation will attract attention; more especially since attempts have recently been made, and not without success, to prepare, with the remains of sea-shells, whites which, with regard to brilliancy and pearly lustre, had a real value, and which, in their resistance to the action of sulphuretted gases, left nothing to be desired.

They conjecture that after the application of the gold, the artist covered the place to be painted with a mordant of drying oil, and that this oil, being brought to a suitable consistence, was sprinkled with the colour in dry powder, by a process analogous to that which is used for making velvet papers.

The pulverulent colours were fixed on places in a similar manner in the manufacture of painted glass, in that of certain kinds of pottery, whether the colour were projected in powder on the place covered with varnish, or deposited on it dry with a badger.

Moreover, the whole picture had received a final preparation. A stucco of wax, which covers the whole of the painting, and whose effect is still very happy, gives to the colours a slightly brilliant appearance at the same time that it must have contributed to preserve them from the action of humidity.

### BELLS OF LONDON AND ITS NEIGHBOURHOOD.

I HAVE just read, with much interest, "J. D. P.'s" letter on the bells of London and its neighbourhood, and add the following peals, not included in his list:—

*Peals of Eight.*—West Ham, Essex: Enfield, Hillingdon, Harrow, Edgeware, Twickenham, Staines, Middlesex; Mortlake, Surrey.

*Peals of Six.*—Hammersmith, St. Paul, 1680; Chiswick, Old; New Brentford; Ealing; Acton; West Drayton, 1710; Edmonton; Harmondsworth; Hayes; Hendon; Hornsey; Pinner; Great Stanmore; Stoke Newington; Edmonton; Tottenham; Willesden; Clapham, St. Mary (R.C.); Bermondsey Old Church; Wimbledon, Surrey; Finchley, Middlesex.

A new peal of eight (tenor, 23 cwt.) by Taylor, of Loughborough, has just been placed in Trinity Church, by Vauxhall-bridge. Also, a peal of five, tenor 11 cwt., is now putting up in the new church at Ealing; these are by Mears.

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### WHAT STATISTICS TEACH AS TO EDUCATION.

A HINT TO WORKMEN.

WE translate the following judicious remark from a German contemporary.\*

It seems not to be yet quite understood, far less practised by parents of the humbler classes of society, that by giving instruction to their offspring, they not only place a capital at their disposal, available for their whole lives, but endow them with a *charm*, which will protect them against evil of all sorts. If we classify the wages of the working classes into three categories, say in the proportion of one, two, three; viz., the weekly wages of seven, fifteen, or thirty, and so on, francs (or shillings), the first, least, category is earned by people who can, generally speaking, neither read nor write. It is not, that we intend to say, that a person thus deficient may not be (by way of exception) still very good, intelligent—nay, wise; but it seems that these conventional abilities entail on their owners a certain ability for better managing the conventionalities of present social life, &c. Thus, reading and writing acquired (in early youth), lead to the acquirement of a higher sort of occupation, trade, or otherwise; because there can be no doubt that the proportions of general intellect are the same as those of wages. So, the journeyman or labourer, the bricklayer and stonemason—in fine, the overseer and clerk, have wages in the proportion of one, two, three; while also their mental acquirements

\* Piper, Paternoster-row.

\* "A New Year's Gift to the Working Men of Europe."